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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/519,692      | 12/27/2004  | Young Sun Kim        | B-5624PCT 622388-4  | 5189             |

7590 09/19/2006

Richard P Berg  
Ladas & Parry  
Suite 2100  
5670 Wilshire Boulevard  
Los Angeles, CA 90036-5679

EXAMINER

HOANG, TU BA

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2832

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/519,692

Applicant(s)

KIM ET AL.

Examiner

Tu Ba Hoang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-11 and 13-18 is/are rejected.
- 7) ☒ Claim(s) 3,12,19 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/27/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

***Specification***

The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

The abstract of the disclosure is objected to because even though it was intended to be a copy from a 371 of the PCT, it should be commence or represented on a separate sheet. Correction is required. See MPEP § 608.01(b).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7-8 and 17-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation "the conductive layer" in line 1. There is insufficient antecedent basis for this limitation in the claim or from the preceding claim .

In claims 8 and 17, there is insufficient antecedent basis for "the anti-oxidation layer" recited at line 2 in the claim or from the preceding claim.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4, 6, 8-9, 10-11, 13, 15, and 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Hosokawa et al (JP 64-053504) cited by the Applicants. Hosokawa et al reference shows a fusible resistor (Fig.3) comprising: a resistor body or substrate 1; a fusible element layer 2, which surrounds the resistor body 1 and is fusible when a current over a predetermined current value is applied to the resistor body 1; caps 4, which surround ends of the fusible element layer; lead wires 5, which are attached to the caps 4; and an insulating or protective layer 6 for insulating the fusible element layer 2 and the caps 4, wherein the fusible element 2 comprises at least copper (i.e., Sn-Pb-Cu alloy). Regarding claims 4 and 13, an anti-oxidation layer 3, which surrounds the fusible element layer 2 as shown in Figure 2. Regarding claims 6 and 15, a conductive layer formed between the resistor body 1 and the fusible element layer can be interpreted as layer 2 where the fusible element layer is element 3. Regarding claims 8 or 17 and 9 or 18, a groove 7 (shown in Figure 3) is formed through the fusible layer 2, and the conductive layer or the anti-oxidation layer 3 in the form of a spiral along a circumference of the fusible resistor.

Claims 1 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kinugasa et al (US 4,038,457). Kinugasa et al reference shows a fusible resistor 1

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comprising: a resistor body or substrate 2; a fusible element layer 3, which surrounds the resistor body 2 and is fusible when a current over a predetermined current value is applied to the resistor body 2; caps 4, which surround ends of the fusible element layer; lead wires 6, which are attached to the caps 4; and an insulating or protective layer 5 for insulating the fusible element layer 3 and the caps 4.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5, 7, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosokawa et al (JP 64-053504) as applied to claims 1-2, 4, 6, 8-9, 10-11, 13, 15, and 17-18 set forth above in view of Tsuzuki et al (US 6,479,744). As set forth above, Hosokawa et al reference disclosed substantially all of the claimed features except for the anti-oxidation layer comprising at least a silver paste and the conductive layer comprising at least nickel and chrome. It is noted that alloys including nickel, chrome, and gold are known for purposes of providing good electrical conductivity as well as anti-corrosion and anti-oxidation and in Hosokawa, at least nickel compound or alloys was used and to add the addition of chrome into the compound would be within the purview of obviousness to one having ordinary skill in the art depend upon the desired purpose. Tsuzuki et al reference shows it is well known to use silver paste on the metal conductive surface also for the purposes of anti-corrosion and anti-oxidation. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Hosokawa et al reference the silver paste taught by

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Tsuzuki et al reference in order to provide beside for plating on or plating through the ceramic resistor body or substrate where the silver paste had the advantage of being co-fired (or able to be cured in a relative high temperature) or conductive adhesive also an anti-corrosion layer if so desired.

Claims 3, 12, and 19-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

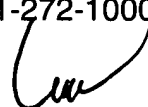
The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not show or fairly suggest the fusible element layer having a material with TC of over 2,000ppm/degree C and a resistivity within a range of  $1 \times 10^{-8}$  to  $5 \times 10^{-8}$  ohm/meter as recited in claims 3 and 12 and the additional conductive layer formed between the resistor body and the fusible element recited in the combination noted in claims 19 and 20.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Lombard et al (US 5,431,718) and baba (US 6,313,521).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu Ba Hoang whose telephone number is (571) 272-4780. The examiner can normally be reached on Mon-Thu from 6:00AM to 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Tu Ba Hoang  
Primary Examiner  
Art Unit 2832

September 08, 2006